NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)
RESPONSE PLAN FOR NUCLEAR EMERGENCIES

Introduction

NOAA has specific statutory responsibility to respond to a variety of environmental disturbances. Appropriate response to the majority of these incidents falls well within the capability of the NOAA Line Offices (LOs). These offices are equipped to fulfill their respective duties to the environment, public, state and other Federal agencies and foreign governments. However, on occasion, these occurrences are of a catastrophic nature, requiring actions that are well beyond the budget and personnel capability of a single line office. A nuclear emergency presents such an instance of large-scale response involving many elements of NOAA. Maintaining an adequate and sufficient response capability is made difficult by the low probability of a large-scale nuclear emergency. Early risk estimates concluded that a major nuclear accident was likely every ten years or so, and this estimate has been largely borne out by experience. However, the low probability of occurrence (in contrast, for example, to that of hurricanes or tornadoes) is compensated by the magnitude of the economic, environmental, and societal impact. In every aspect, the damage (or even threat) caused by a nuclear accident is potentially mammoth. There can be cumulative long-term effects on health as well as the more obvious consequences of acute exposure. Large expanses of countryside can be poisoned by deposited radionuclides, and affected urban areas and cities must be vacated perhaps for centuries. The post-Chernobyl experience illustrates the risk society takes if we are unprepared to respond.

NOAA capabilities related to atmospheric transport, dispersion, and deposition forecasting are well organized for response to an international nuclear emergency, through the structure of the Regional Specialized Meteorological Center (RSMC) operated jointly by the National Weather Service's National Centers for Environmental Prediction (NWS/NCEP) and the Office of Oceanic and Atmospheric Research's Air Resources Laboratory (OAR/ARL) under the auspices of the World Meteorological Organization (WMO). The U.S. RSMC is one of five such organizations recognized by WMO as providers of expert forecast guidance on plume transport, dispersion, and deposition following a nuclear emergency. The RSMCs were established by the WMO and the International Atomic Energy Agency (IAEA) in response to the lack of coordination and reliable information evident after the Chernobyl accident. Their main purpose is to provide specialized dispersion predictions to the weather services of countries that do not have the technical capability to respond to such events. The other RSMCs are at Toulouse, France; Bracknell, UK; Montreal, Canada; and Melbourne, Australia.

The present purpose is to establish an organized NOAA response capability for atmospheric nuclear emergencies affecting the United States, that builds upon the international experience of the RSMC and the emergency response experience and capabilities of the NOAA Line Offices, to satisfy NOAA's national emergency responsibilities. Attached to this document are three annexes. Annex A specifies the steps involved in a NOAA nuclear emergency response activity. Annex B details legal authorities for these response actions. Annex C is a list of acronyms used in this document.

Policy

The extreme nature of nuclear emergencies makes it imperative that NOAA be prepared to marshal all its resources promptly in order to protect public health, the environment, and national security. NOAA's policy is to form an organized emergency response capability that fully uses the capabilities of each line office. The adoption of procedures and directives for responding to a nuclear emergency (including one that involves a threat to national security) will provide the necessary mechanism for internal coordination and funding, thereby decreasing the potential of unnecessary loss of life, natural resources and property. It is also NOAA policy to provide related support as needed by other agencies, within the constraints imposed by the availability of staffing and budgetary resources.

Definition

For the present purposes, an atmospheric nuclear emergency is any event (civilian or military) that results in the release or potential release of hazardous radioactive materials into the atmosphere. The initiating event may be a mishap involving a nuclear reactor (power, production, or research), the explosion of a nuclear device (not necessarily involving fission or fusion), or the injection of radioactivity into the air as a terrorist act or as an inadvertent consequence of some accident or atmospheric event.

Statutory Authority

Prime authority lies in the Department of Commerce Organization Order 25-5 dated September 30, 1994. Additional authorities are listed in Annex B of this Plan.

The Federal Radiological Emergency Response Plan (FRERP), May 1, 1996, outlines contributions that Federal Agencies can make in the event of a domestic nuclear emergency. Different Federal agencies are identified as Lead Federal Agency (LFA) for different kinds of emergency, as follows:

Accidents involving a nuclear facility

Nuclear facility licensed by NRC or an Agreement State . . . . . NRC

Nuclear facility owned or operated by DOD or DOE . . . . DOD or DOE

Nuclear facility not licensed, owned, or operated by a Federal Agency or an Agreement State . . . . . EPA

Accidents involving transportation of radioactive materials

Shipments licensed by NRC or an Agreement State . . . . . NRC

Shipments by or for DOD or DOE . . . . . DOD or DOE

Shipment of materials not licensed or owned by a Federal Agency or an Agreement State . . . . . EPA

Satellites containing radioactive materials . . . . . NASA or DOD

Impact from foreign or unknown sources . . . . . EPA

Other types of emergencies . . . . . As appropriate: LFAs confer

The FBI serves as LFA in the event of acts of terrorism involving nuclear materials.

DAO 210-10, Emergency Operations for Departmental Continuity dated February 23, 1996, calls for the identification of an Emergency Planning Officer to serve as a focal point for NOAA during an emergency that disrupts NOAA operations. In the event that a nuclear emergency interrupts NOAA's operations or that NOAA's capabilities to respond to a nuclear emergency are affected by some other interruption (severe weather, power loss, etc.), then appropriate NOAA responsibility resides with the Office of Security.

Any LFA may request NOAA assistance in the event of a nuclear emergency. In addition, Appendix C of the FRERP specifies roles and capabilities of the Department of Commerce, of which the following reside within NOAA:

a. Acquiring and disseminating weather data and providing weather forecasts in direct support of emergency response operation;

b. Preparing and disseminating predictions of plume trajectories, dispersion, and deposition of radiological material released into the atmosphere;

c. Providing local meteorological support as needed to assure the quality of these predictions;

d. Organizing and maintaining a special data archive for meteorological information related to the emergency and its assessment; and

e. Providing guidance as needed to ensure that marine fisheries products available to the public are not contaminated.

The way in which NOAA responds to an international nuclear incident is already well prescribed in WMO/RSMC documentation. The precise mechanism for interactions with other Federal Agencies that are also involved, through direct association with IAEA for example, is the topic of ongoing debate among the agencies concerned.

There are several mechanisms by which U.S. involvement in a foreign nuclear accident may be triggered. In addition to the WMO/RSMC procedures, these include (a) involvement by U.S. Armed Forces stationed on foreign territory, (b) official governmental requests for assistance forwarded through the Department of State, and (c) implementation of specific treaty provisions that may be relevant on a case-by-case basis. The FRERP specifies that the Environmental Protection Agency (EPA) will serve as the LFA whenever a foreign nuclear emergency "has actual, potential, or perceived radiological consequences in the United States, its Territories, possessions, or territorial waters." In its role as LFA, the EPA may request NOAA assistance.

Organization and Procedures

The NOAA contributions outlined above are related to the needs of the overall multi-agency response effort, as documented in the FRERP. In addition, there are requirements within NOAA to maintain a steady flow of reliable information (i) to the Under Secretary/Administrator, (ii) to those line offices with specific responsibilities, and (iii) to NWS forecast offices and other NOAA organizations directly involved with supporting management of the actual on-site response effort.

To ensure that the roles listed above are fulfilled, and considering the many routes by which information and requests can flow into NOAA (Annex A), there shall be a formally recognized Point of Contact within NOAA and a NOAA Standing Committee on Nuclear

Emergency Response. The responsibilities and procedures are delineated as follows:

The response actions addressed here are in addition to the special requirements associated with threats to national security, addressed at the Departmental level.

a. Point of Contact

The NOAA initial point of contact will be the Senior Duty Meteorologist (SDM) at NCEP. Once notified of a nuclear emergency, the SDM will immediately contact each member of the Standing Committee, and will initiate a special run of the most appropriate meteorological and dispersion/deposition model products.

b. NOAA Standing Committee on Nuclear Emergency Response

There will be a formal NOAA Standing Committee on Nuclear Emergency Response, made up of one key representative of each Line Office, plus the Office of the Deputy Under Secretary, the Office of Finance and Administration (as relevant to safety issues), NCEP and the ARL. Members shall be responsible for identifying appropriate substitutes or representatives in the event of their own absence. This committee shall meet at least twice per year.

1. The Standing Committee shall serve as the NOAA coordinating body, to be augmented as determined by the Under Secretary/Administrator in the event of an actual emergency.

2. The Standing Committee Chairman shall be appointed by the Under Secretary/Administrator at least every three years.

3. The Standing Committee shall nominate from within its membership a NOAA participant for all meetings of the Federal Emergency Management Agency (FEMA)-led Federal Radiological Preparedness Coordinating Committee (FRPCC) in accordance with the Department of Commerce delegation authority. This interagency committee leads the FRERP and Federal Response Plan (FRP) processes for nuclear instances.

4. Each member of the Standing Committee will be responsible for initiating actions within his/her own Line Office, as appropriate to meet requirements of the NOAA response and to satisfy requirements of the FRERP, the FRP, and the Federal Radiological Monitoring and Assessment Center (FRMAC).

5. In collaboration with FEMA and other responsible agencies, the Standing Committee will develop drill concepts and procedures for consideration by NOAA management, including a supporting training plan, and will organize and hold drills as necessary to assure that the NOAA response is appropriate, at least every three years.

6. The Standing Committee shall develop procedures and training to protect the safety of NOAA employees involved in related activities.

7. The Standing Committee shall finalize plans and exercise NOAA mechanisms for interactions with other agencies, as may be necessary in such cross-agency activities as the deployment of specialized meteorological equipment to support response activities and management.

8. The Standing Committee shall review resource requirements (personnel and budgets) imposed in the event of a nuclear emergency, shall provide recommendations to the Under Secretary/Administrator on appropriate courses of action, and shall develop agreements (and Memoranda of Understanding) concerning reimbursements from other agencies.

9. The Standing Committee shall provide integrated summary reports regarding NOAA response activities, on a regular schedule as specified by the Under Secretary/Administrator.

10. The Standing Committee shall serve as a coordinator and facilitator of any management documentation or budgetary requests that might arise from these activities.

c. NOAA Line Offices

Each LO representative on the Standing Committee shall be responsible for ensuring a timely and adequate response from his/her LO, as outlined in the FRERP and/or as modified by circumstances of particular emergencies. The LO responses are as follow:

1. Combined National Weather Service and Oceanic and Atmospheric Research

- NCEP, working with OAR/ARL, Silver Spring, will immediately produce detailed transport, dispersion and deposition forecasts, based on all available source-term information and the most appropriate meteorological field derived from NCEP models augmented by finer-scale models focused on the source area.

2. National Weather Service (NWS)

- Local forecast offices will be called on to provide weather information and forecasts for use in managing on-site response team actions.

- Local forecast offices may be asked for assistance in the provision of experienced personnel, and the use of some specialized facilities, especially in the early stages of a response action.

- It is anticipated that NOAA Weather Radio and other public information systems will be used to disseminate general warnings and specific safety information.

3. Oceanic and Atmospheric Research (OAR)

- The ARL/Special Operations and Research Division (ARL/SORD (Las Vegas)) response team will be placed on full deployment readiness, in anticipation of declaration of a formal nuclear emergency by FEMA. The ARL/SORD team would be deployed to gather on-site meteorological information and provide site-specific forecasts for dispersion purposes, once a FRMAC (under DOE leadership) is set up.

- ARL Silver Spring will immediately identify available experienced personnel to assist in the operations of the Nuclear Regulatory Commission’s Emergency Response Center. ARL would provide staff assistance to NRC upon NRC request.

- In the specific event of an accident involving terrorism, the ARL/SORD group in Las Vegas would be deployed, through its role with the DOE and the Nuclear Emergency Search Team.

4. National Marine Fisheries Service (NMFS)

- NMFS’ Seafood Protection Program will provide personnel for the radiological monitoring and surveillance of harvested fishery products intended for human consumption by assisting the Food and Drug Administration which has statutory authority for the public health assurances of fish and fishery products. The two agencies have an established record of cooperative efforts in monitoring and surveillance activities following petrochemical spills and outbreaks of natural biotoxins.

5. National Environmental Satellite, Data and Information Service (NESDIS)

- Satellite imagery will be used to monitor conditions in the incident area, and especially to derive information on the

initial height and direction of motion of emissions (if visible to remote sensors).

6. National Ocean Service (NOS)

- The Hazardous Materials Response and Assessment Division of the Office of Ocean Resources Conservation and Assessment, NOS, can provide technical assistance on the fate, behavior, and ecological risk or effects of non-radioactive hazardous materials if such substances are involved and if requested by EPA or the U.S. Coast Guard.

Budgetary Responsibility

Operational responses to large-scale disasters and conflicts caused by the human race and technological emergencies are not now represented in the NOAA Strategic Plans, or in the strategic planning process of the Committee on the Environment and Natural Resources (CENR). Much of the NOAA activity related to provision of products as outlined in the FRERP is presently unfunded by NOAA. The Standing Committee shall take immediate steps to introduce relevant documentation into the strategic planning materials of both NOAA and the CENR. It is the intent to ensure maintenance of an evolving modern response capability, at a minimum adequate level, so that NOAA response functions will be provided with agency-wide coordination and public acceptance.

In the event of declaration of a formal emergency, the Standing Committee shall take all necessary steps to recover costs of the NOAA response effort from whatever Federal sources may then be appropriate, and in accordance with provisions of the Federal Response Plan and the Stafford Act.

Agreement

The agreement of line offices to the adoption of these procedures is indicated by the signatures that follow.

Agreement

_____ Assistant Administrator for NWS
Date

_____ Assistant Administrator for OAR
Date

_____ Assistant Administrator for NMFS
Date

_____ Assistant Administrator for NESDIS
Date

_____ Assistant Administrator for NOS
Date

_____ Chief Financial Officer/
Chief Administrative Officer
Date

_____ Chief Scientist
Date

Cognizance

_____ Director, NCEP
Date

_____ Director, ARL
Date

_____ Director, NOAA Security
Date

Approval

_____ Deputy Under Secretary
Date

ANNEX A

STEPS INVOLVED IN A NOAA NUCLEAR EMERGENCY RESPONSE

The sequence of events

NOAA is notified

The official “point of contact” within NOAA and for WMO is the Senior Duty Meteorologist (SDM) at NCEP. The SDM must be informed immediately if the notification comes via the following:

By contact with the Commerce Watch Officer
By contact through DOC and/or NOAA Security offices
By telephone directly to ARL Silver Spring from EOP, NRC, etc.
By contact with ARL/SORD Las Vegas, requesting on-site meteorological support
By contact with NWS locally
By formal mechanisms involving FEMA
By contact from the National Response Center
By direct contact from IAEA, or from requesting country (if international)
By questions or announcements from news media
By contact with ORCA Hazardous Material Response and Assessment Team
By contact from the DOE Atmospheric Release Advisory Capability

The news is disseminated

The SDM (NCEP) is responsible for the initial distribution of information to the NOAA Standing Committee on Nuclear Emergency Response members and others as follows:

To NWS for distribution to forecast offices
To ARL, to provide on-site meteorological support and to ensure appropriate scientific attention to transport and dispersion products
To the Under Secretary/Administrator of NOAA
To NOAA and DOC Security Offices
To NESDIS, to request any available information on source and plume imagery, local weather conditions, etc.
To NMFS, to permit consideration of fisheries at risk
To other RSMCs, IAEA
To the DOE Atmospheric Release Advisory Capability at LLNL

To the National Response Center, FEMA, etc.
To NOAA Public and Constituent Affairs, for their information

Key actions are initiated

ARL/SORD (Las Vegas) prepares for deployment (or is already active if a NEST event)
Current-condition information and local weather forecasts are updated NCEP disseminates initial transport and dispersion products; ARL initiates an update program
ARL provides assistance to NRC at the NRC headquarters (for U.S. accidents)
NOAA provides a team member to the FRMAC (once the LFA requests a FRMAC)
Product-sharing with DOE/LLNL/ARAC is initiated
NESDIS "targets" the site (origin) in question - clouds, precipitation, winds, etc.
FEMA and other agencies are contacted as appropriate (see FRERP)
Initial NMFS assessments are prepared
Briefing schedule for Public and Constituent Affairs is arranged
Accounting for time and effort devoted is initiated (in anticipation of Stafford Act action)

Responsibility for assuring the safety of NOAA personnel, for coordinating NOAA activities, and for tracking progress resides with the NOAA Standing Committee.

Key decisions are required, each necessitating consideration by the Committee or by a senior emergency manager with this responsibility (yet to be identified).

Is the accident severe enough to warrant “critical weather day” attention?
Should ARL bring staff in from field offices to assist activities?
Should ARL provide manpower assistance to NCEP?
Should DOD assistance be requested (satellite coverage, etc.)?
Are NWS personnel needed to assist in on-site activities?
Should NOAA provide an on-site senior advisor to assist the FRMAC On-Scene Commander (usually DOE) in managing the response?

ANNEX B

OPERATING AUTHORITIES/REFERENCES

Public Laws:

Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, as amended by Public Law 100-707, 42 U.S.C. 5121 et seq.

Presidential Executive Orders:

E.O. 12241, National Contingency Plan, September, 29, 1980

E.O. 12656, Assignment of Emergency Preparedness Responsibilities, November 18, 1988

E.O. 12657, Federal Emergency Management Agency Assistance in Emergency Preparedness Planning at Commercial Nuclear Power Plants, November 18, 1988

Federal Interagency Response Plans:

Directory of Atmospheric Transport and Diffusion Models, Equipment, and Projects, OFCM Pub FCM-I3-1991 (March 1991)

National Plan for Radiological Emergencies at Commercial Nuclear Power Plants, OFCM Pub FCM-PI5-1882 (November 1982)

The Federal Response Plan, December 1991.

The Federal Radiological Emergency Response Plan, 1 May 1996.

DOC Directives and Operating Plans:

DOC Department Organization Order 20-6, "Office of Security", August 16, 1984 -- Appendix A "Regional Emergency Coordinators"

DOC Administrative Order 210-7, "Commerce Responsibilities in Disasters", April 15, 1977.

DOC Administrative Order 201-10, "Non-Duty Emergency Notification Procedures", May 11, 1990.

DOC Administrative Order 210-10, “Emergency Operations for Departmental Continuity”, February 23, 1996.

Natural Disaster and Significant Incident Reporting Program, NOAA Directives Manual, Chapter 28. Section 17, June 3, 1983.

ANNEX C

ACRONYMS

ARAC	Atmospheric Release Advisory Capability (of LLNL)
ARL	Air Resources Laboratory (OAR)
CENR	Committee on the Environment and Natural Resources
DOC	Department of Commerce
DOD	Department of Defense
DOE	Department of Energy
EPA	Environmental Protection Agency
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Agency
FRERP	Federal Radiological Emergency Response Plan
FRMAC	Federal Radiological Monitoring and Assessment Center
FRP	Federal Response Plan
FRPCC	Federal Radiological Preparedness Coordinating Committee
HAZMAT	Hazardous Materials Response and Assessment Team
IAEA	International Atomic Energy Agency (Vienna)
LFA	Lead Federal Agency
LLNL	Lawrence Livermore National Laboratory
NASA	National Aeronautics and Space Administration
NCEP	National Centers for Environmental Prediction
NEST	Nuclear Emergency Search Team
NESDIS	National Environmental Satellite Data and Information Service
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
NRC	Nuclear Regulatory Commission
NWS	National Weather Service
OAR	Office of Oceanic and Atmospheric Research
ORCA	Ocean Resources Conservation and Assessment (NOS)
RSMC	Regional Specialized Meteorological Center of the WMO
SDM	Senior Duty Meteorologist (NCEP)
SORD	Special Operations and Research Division (ARL - Las Vegas)
WMO	World Meteorological Organization